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The age of the molecular organization of life as expressed in the genetic code can be estimated from experimental data. Comparative sequence analysis of transfer RNA by the method of statistical geometry in sequence space suggests that about one-third of the present transfer RNA sequence divergence was present at the urkingdom level about the time when archaebacteria separated from eubacteria. It is concluded that the genetic code is not older than, but almost as old as our planet.

Manfred Eigen, and others, 1989,
How old is the genetic code? Statistical geometry of tRNA provides an answer:
Science, v. 244, p. 673-679 (from the abstract).

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